

Application No. 10/537,980
Amendment Dated September 14, 2009
Reply to Office Action of May 12, 2009

This listing of claims will replace all prior versions, and listings, of claims in the application.

In the Claims:

1-51. CANCELED.

52. (CURRENTLY AMENDED) A flash lamp comprising a composite body, the composite body~~I,J~~ comprising:

a first tubular body part made of glass and having ~~[[an]]~~ a first opening at a first end thereof, and

a mechanical metallic connection part at the first opening at the first end of the tubular body part, the composite body being a flash lamp, characterized in that wherein:

the metallic connection part is melted onto an inner surface of the first opening at the first end of the first tubular body part,

the metallic connection part contains aluminium having a purity of at least 99 weight percent, and

the first opening of the first tubular body part is closed by the metallic connection part.

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53. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized by further comprising:~~

a second body part made of metal or glass, the metallic connection part
connecting ~~both~~ the first tubular part and the second body part[[s]].

54. (CURRENTLY AMENDED) The composite body according to claim 52 or 53, one
~~or more of the preceding claims, characterized in that~~ wherein the first tubular body part
~~at least regionally includes rounded edges where~~ [[it]] the first tubular body part
contacts the metallic connection part.

55. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that~~ wherein the first tubular body part ~~at least regionally includes~~
material reinforcements where [[it]] the first tubular body part contacts the metallic
connection part.

56. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that~~ wherein the first opening accommodates an auxiliary part
consisting of a material having a thermal expansion coefficient that is smaller than that
of aluminium, ~~preferably glass, and~~ the auxiliary part being connected to the first tubular
body part by ~~means of~~ the metallic connection part.

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57. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the first opening accommodates a second body part serving as an inner electrode and including constructed from~~ a metallic material having a thermal expansion coefficient that is smaller than that of aluminium, preferably a sintered body, which is the inner electrode being connected to the first tubular body part by means of the metallic connection part.

58. (CURRENTLY AMENDED) The composite body according to claim 57,
~~characterized in that further comprising:~~

~~an uncovered a first surface portion of the second body part inner electrode that protrudes into [[the]] an interior of the composite body and a second while the surface portion of the second body part inner electrode that protruding to the exterior protrudes distally from the composite body and that is covered at least partially surrounded by the metallic connection part.~~

59. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the metallic connection part includes a grained filler, [[and/or]] a powdery filler, or a combination thereof, the filler having a thermal expansion coefficient that is smaller than that of aluminium.~~

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60. (CURRENTLY AMENDED) The composite material according to claim 59,
~~characterized in that wherein the filler includes glass powder, in particular is selected from a group consisting of quartz glass powder, and/or oxides and/or metal, particularly tungsten, [[or]] molybdenum, tungsten oxides, and molybdenum oxides.~~

61. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the composite body is the first body part and the connection are parts of an air-tight housing or a vacuum-tight housing, the housing enclosing a volume.~~

62. (CURRENTLY AMENDED) The composite body according to claim 61,
~~characterized in that further comprising:~~

~~an electrode positioned inside the volume of the housing an electrode is provided which that is electrically connected to the metallic connection part.~~

63. (CURRENTLY AMENDED) The composite body according to claim 62,
~~characterized in that wherein the electrode is mechanically held physically coupled to the housing by the metallic connection part.~~

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64. (CURRENTLY AMENDED) The composite body according to claim [[52]] 61, characterized in that the first body part is part of a housing consisting of glass and the second body part is further comprising:

a metallic wire extending from that extends between the volume enclosed by the housing interior to the and an exterior of the housing.

65. (CURRENTLY AMENDED) The composite body according to claim 52, characterized in that wherein the glass includes an is selected from a group consisting of oxidic glass, particularly hard glass, [[or]] and quartz glass.

66. (CURRENTLY AMENDED) The composite body according to claim 52, characterized in that wherein the glass comprising the first tubular body part is characterized by a softening point temperature that of the glass is above greater than a melting point temperature associated with the melting point of the metallic connection part.

67. (CURRENTLY AMENDED) The composite body according to claim 52, characterized in that the metal includes wherein the metallic connection part further includes a metal selected from a group consisting of copper, and/or nickel, and/or tantalum, and/or tungsten, and/or molybdenum, and combinations thereof.

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68. (CURRENTLY AMENDED) The composite body according to claim 53,
~~characterized in that wherein~~ the second body part is a ~~preferably~~ cylindrical glass body
at least partially coated with aluminium, ~~which is partially~~ ~~wherein~~ a first portion of the
~~cylindrical glass body is inserted in [[an]] the first opening of the first tubular body part~~
and ~~partially~~ a second portion of the cylindrical glass body protrudes therefrom.

69. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein~~ the first tubular body part is a glass tube at least one end
of which is closed by the connection encloses a volume.

70. (CURRENTLY AMENDED) The composite body according to claim [[69]] 52,
~~characterized in that the second body part includes~~ wherein a metallic portion
preferably consisting of constructed from molybdenum [[and/]] or tungsten which is
inserted extends from the volume inside of the tube in first tubular body part and
through the metallic connection part to a portion that is external to the first tubular body
part, as well as a wire inserted from the outside in the connection.

71. (CURRENTLY AMENDED) The composite body according to claim [[52]] 69,
~~characterized in that the first body part is a glass tube one end of which is closed by the~~
~~connection, the~~ wherein a surface of the metallic connection part within the volume of
the first tubular body part includes a layer constructed from including caesium, and/or

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~~barium, and/or their oxides on the inner surface~~ caesium oxides, barium oxides, and combinations thereof.

72. (CURRENTLY AMENDED) The composite body according to claim [[52]] 69, wherein characterized in that the first body part is a glass tube one end of which is closed by the connection, the a surface of the metallic connection part that is outside the first tubular body part includes including a solder layer on the outer surface.

73. (CURRENTLY AMENDED) The composite body according to claim 52, characterized in that the metal proportion of wherein the metallic connection part is constructed from an aluminium alloy containing at least 90 weight per cent of aluminium.

74. (CURRENTLY AMENDED) The composite body according to claim 52, characterized in that the metal proportion of wherein the metallic connection part contains at least 98 weight per cent of aluminium.

75. (CURRENTLY AMENDED) The composite body according to claim 73 or 74, characterized in that the proportion needed to complete 100% wherein the aluminium alloy includes silicon, and/or magnesium, and/or manganese, and/or calcium, or a combination thereof.

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76. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein an outer surface of the metallic connection part includes a~~
~~on the outer surface comprises a metallic coating including in particular one or more of~~
~~the elements constructed from a metal selected from a group consisting of tin, silver,~~
~~copper, zinc, cadmium, lead, or including alloys of these elements the same, and~~
combinations thereof.

77. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the first tubular body part includes a free end that is~~
~~opposite the first end, the first end of the first tubular body part is a tube having in one~~
~~portion of its closure by the connection at least regionally having a first cross-sectional~~
~~shape other than that in the free portion and the free end of the first tubular body having~~
a second cross-section shape.

78. (CURRENTLY AMENDED) The composite body according to claim 77,
~~characterized in that together with wherein the first cross-sectional shape includes a~~
~~metallic section corresponding to the metallic connection part and having a length and a~~
~~width, wherein the width of the metallic section is at most 1 mm the connection the tube~~
~~in the closure portion has a cross-sectional shape wherein a cross-section through the~~
~~connection respectively has a dimension DV of at most 1 mm, preferably 0.3 mm and~~
~~more preferably 0.1 mm.~~

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79. (CURRENTLY AMENDED) The composite body according to claim 77 or 78, wherein the first cross-sectional shape includes a metallic section corresponding to the metallic connection part and having a length and a width, and wherein the width of the metallic section comprises at most 10% of a width of the first cross-sectional shape characterized in that together with the connection the tube in the closure portion has a cross-sectional shape wherein a cross-section through the connection has a dimension DV which respectively is at most 10 %, preferably 3 % and more preferably 1 % of a cross-sectional dimension DK throughout the whole body at the same site.

80. (CURRENTLY AMENDED) The composite body according to claim 78, wherein the second cross-sectional shape includes an opening having a length and a width, and wherein the length of the metallic section is greater than the length of the opening characterized in that together with the connection the tube in the closure portion has a cross-sectional shape wherein a cross-section through the connection has a dimension BV which is larger than the inner diameter DI of the tube in the free portion.

81. (CURRENTLY AMENDED) The composite body according to claim 79, wherein the second cross-sectional shape includes an opening having a length and a width, and wherein the length of the metallic section is greater than the length of the opening characterized in that together with the connection the tube in the closure portion has a cross-sectional shape wherein a cross-section through the connection has a

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~~dimension BV which is larger than the inner diameter DI of the tube in the free portion.~~

82. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the first end at least one end of the tube first tubular body part is formed in a bent manner.~~

83. (CURRENTLY AMENDED) The composite body according to claim 82,
~~characterized in that wherein the bending comprises an angle (μ) ranging between about 45° and about 135°, preferably between 80° and 100°.~~

84. (CURRENTLY AMENDED) The composite body according to claim 82 or 83,
~~characterized in that wherein the metallic connection part provides serves as an outer electrical, preferably solderable connection.~~

85. (CURRENTLY AMENDED) The composite body according to claim 82,
~~characterized in that the closure portion is formed according to claim 78, wherein the first end of the first tubular body part is formed in a bent manner.~~

86. (CURRENTLY AMENDED) The composite body according to claim 82,
~~characterized in that the closure portion is formed according to claim 79, wherein the first end of the first tubular body part is formed in a bent manner.~~

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87. (CURRENTLY AMENDED) The composite body according to claim 82,
~~characterized in that the closure portion is formed according to claim 80, wherein the~~
first end of the first tubular body part is formed in a bent manner.

88. (CURRENTLY AMENDED) The composite body according to claim 84,
~~characterized in that the closure portion is formed according to claim 78, wherein the~~
first end of the first tubular body part is formed in a bent manner and the metallic
connection part provides an outer electrical connection.

89. (CURRENTLY AMENDED) The composite body according to claim 84,
~~characterized in that the closure portion is formed according to claim 79, wherein the~~
first end of the first tubular body part is formed in a bent manner and the metallic
connection part provides an outer electrical connection.

90. (CURRENTLY AMENDED) The composite body according to claim 84,
~~characterized in that the closure portion is formed according to claim 80, wherein the~~
first end of the first tubular body part is formed in a bent manner and the metallic
connection part provides an outer electrical connection.

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91. (CURRENTLY AMENDED) The composite body according to claim 52,
~~characterized in that wherein the metallic connection part is devoid of an antioxidant~~
~~includes no coating at any time which serves to protect against oxidation and in~~
~~particular consists of another metal.~~

92. (WITHDRAWN) Method for producing a flash lamp, comprising the steps of:
 providing a first body part consisting of or containing glass and having an opening, and
 attaching a connection to the first body part, characterized in that aluminium having a purity of at least 99 weight per cent is used for the connection,
 the connection is heated beyond its melting point and melted onto the first body part,
 the connection being purified from oxide components before melting it onto the first body part, and
 the opening of the first body part being closed by the connection.

93. (WITHDRAWN) The method according to claim 92, characterized in that after heating beyond its melting point the connection is purified from oxide components.

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94. (WITHDRAWN) The method according to claim 92 or 93, characterized in that the first body part is connected to a second body part by means of the connection.

95. (WITHDRAWN) The method according to claim 92, characterized in that before producing the connection the first body part is at least regionally rounded where it contacts the connection, particularly by beginning to melt the body part.

96. (WITHDRAWN) The method according to claim 92, characterized in that before attaching the connection to the first body part where it contacts the connection a material reinforcement is at least regionally formed, particularly by beginning to melt the body part.

97. (WITHDRAWN) The method according to claim 92, characterized in that an auxiliary part consisting of material having a thermal expansion coefficient smaller than that of aluminium, preferably glass, is positioned in the opening and then connected to the first body part by means of the connection.

98. (WITHDRAWN) The method according to claim 92, characterized in that before attaching the connection the aluminium-containing substance is mixed and melted with a grained and/or powdery filler having a thermal expansion coefficient smaller than that of aluminium.

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99. (WITHDRAWN) The method according to claim 92, characterized in that the melting of the connection onto the first body part is accomplished in the absence of oxygen, preferably in a protective gas atmosphere or in a vacuum.

100. (WITHDRAWN) The method according to claim 99, characterized in that a gas is used as a protective gas with which the closed composite body is to be filled.

101. (WITHDRAWN) The method according to claim 92, characterized in that the melting of the connection onto the first body part is accomplished at a temperature at which the connection has melted and at which the glass does not soften.

102. (WITHDRAWN) The method according to claim 101, characterized in that the melting of the connection onto the first body part is accomplished at a temperature which facilitates the diffusion of alumina into the glass.

103. (WITHDRAWN) The method according to claim 92, characterized in that during producing the mechanical connection the connection material and the first body part are gradually heated together.

104. (WITHDRAWN) The method according to claim 92, characterized in that a tubular body part is used the end of which is flattened.

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105. (WITHDRAWN) The method according to claim 104, characterized in that the flattening is performed after attaching the connection, the glass being heated beyond its softening point before the flattening.

106. (WITHDRAWN) The method according to claim 104 or 105, characterized in that the end of the tube is bent.

107. (WITHDRAWN) The method according to claim 92, characterized in that the connection is heated to at least 700°C before it is melted onto the first body part.

108. (WITHDRAWN) The method according to claim 92, characterized in that the heating of the connection and its purification from oxides is accomplished in a protective gas atmosphere.

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109. (NEW) The composite body according to claim 52, wherein the aluminium comprising the metallic connection part has a purity of at least 99 weight per cent.

110. (NEW) The composite body according to claim 78, wherein the width of the metallic section is at most 0.3 mm.

111. (NEW) The composite body according to claim 78, wherein the width of the metallic section is at most 0.1 mm.

112. (NEW) The composite body according to claim 79, wherein the width of the metallic section is at most 3% of the width of the first cross-sectional shape.

113. (NEW) The composite body according to claim 79, wherein the width of the metallic section is at most 1% of the width of the first cross-sectional shape.

114. (NEW) The composite body according to claim 82, wherein μ ranges between about 80° and about 100°.

115. (NEW) The composite body according to claim 82 or 83, wherein the metallic connection part provides a solderable connection